GRACE

Construction Products Division

TO: R. J. Bettacchi

DATE: January 3, 1983

FROM: A. N. Crawford

SUBJECT: December, 1983 Monthly Report

cc: J. E. Danel/CPD Enoree
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MONTHLY HIGHLIGHTS

- Dearborn Chemical Co. has reached a tentative agreement with Basin Electric Co. covering royalty payments for Dearborn's patented Firemate Process. Details of this agreement will be available next month.

- 3M Company will install bulk handling equipment in 1984 at their Chem-O-Lite plant to handle approximately 1,300 tpy of VCX-104 (L-4) concentrate. This new vermiculite requirement is for 3M's Interam (intumescent ceramic) paper which is sold as an automotive and industrial high temperature gasket material. 3M projects their vermiculite requirements to reach 4,000 tpy or nearly $500,000 in gross sales by 1988.

- Interest in vermiculite dispersion continues to grow among paper gasket manufacturers as well as the four major U. S. manufacturers of fiber glass. We are in the process of scaling up our testing to make 200 gallon batches for plant evaluation at Certainteed Corp. Our Polyfibron Division has agreed to make available their pilot plant equipment here in Cambridge. The first 200 gallon batch should be available for testing by early February.

- Carborundum Corp. predicts that they will have approval at General Motors Co. with their new gasket paper containing our LTEV developmental product. Carborundum will order another 24,000 lbs. of LTEV by March, 1984 to start commercial development of their new product.

I. VERMICULITE CONCENTRATE (VCX)

A. Dearborn Chemical Co.

DUSCO has reached a tentative agreement with Basin Electric Co. regarding royalty payments for their Firemate Process. A meeting with Mr. Doug Bain, DUSCO's General Manager is scheduled for January 4. We will review CPD's vermiculite sales strategy and the DUSCO agreement at this meeting.

B. Tremolite Binder Project

1. Domtar Gypsum Co. has agreed to allow CPD to run fiber measurements at their Long Beach, California plant. We plan to check fiber levels on three different batches of SBO treated VCX-194 (L-4G). The first test is tentatively scheduled for the week of January 16th. These measurements are being made to confirm that SBO treated concentrate has insignificant levels of airborne tremolite fibers. The results are important to our future label requirements for SBO treated products.

2. A split carload of VCX-103 (L-3) was shipped from Libby to our Trenton plant on December 13, 1983. This car should arrive in time to run Monokote field trials in late January, 1984. Cambridge R&D personnel will be on hand to conduct comparative furnace tests of SBO treated concentrate. The objective of the furnace tests is to quantify furnace yield and/or thruput advantages of SBO treated concentrate.

3. The evaluation of SBO treated VCX-104 (L-4) at New Orleans showed no problems in actual field tests as well as C-45 tests conducted at Travelers Rest, South Carolina. A follow-up test is scheduled for late January, tentatively at our Pompano plant. Libby will ship another split carload as soon as a field test can be arranged.

C. Zonolite Licensees

1. In 1984 we will start invoicing all Zonolite Licensees for their portion of AOK royalties due to American Hoechst Co. Prior to 1984, CPD has paid the Licensees royalty to American Hoechst. Invoices will be sent twice a year to coincide with the AOK usage reports submitted by each Licensee.

2. In 1984, we will also invoice Zonolite Licensees for Monokote Royalty payments. It has been difficult to keep track of the Monokote Royalty payments. Invoicing each Licensee should resolve this problem.

3. Vermiculite Intermountain in Salt Lake City continues to look for a buyer for their Zonolite business. Vermiculite Intermountain lost money in 1982 and will probably finish 1983 with a loss. R. A. Merther will meet with Lee Irvine, President of Vermiculite Intermountain, to discuss their liability on a job in Wyoming. Vermiculite Intermountain was using a Monokote formula that is no longer UL approved. The actual cash value of the chargeback is not known, however, it could be large enough to put Lee Irvine out of business.

4. Mr. Jack York, President of Vermiculite of Hawaii, is also interested in selling his Zonolite business. Jack will be relocating his plant to a lower rent district in Honolulu. We have agreed to supply expanded vermiculite to Jack York from our West Coast plants until his plant can be relocated. Jack has quoted several jobs in the Far East and is also considering moving his furnace to Korea to produce material for several large construction jobs. One job is the U. S. Army Corps of Engineers Hospital for $90 million. Jack quoted on 20,000 s.f. of Insulpave.

D. Competitive Market Information

1. We have received orders from USG's plants at Oakfield, New York and Baltimore, Maryland. Virginia Vermiculite usually supplies the USG locations. USG needed product immediately to keep from shutting down. In both cases, the plants indicated they had received product from Virginia that did not meet UL specification.

2. Manville Corp. is aggressively soliciting Perlite ore sales to Basin Electric Co. So far it appears that vermiculite has a performance advantage over perlite, however, the introduction of perlite competition has changed the market value of vermiculite in the Firemate process.

E. Account Status

1. U. S. Gypsum Co., Chicago, Illinois, is presently reviewing our contract proposal for their vermiculite concentrate requirements. We expect USG will sign and return the agreement by mid January.

2. 3M Company, St. Paul, Minnesota will start buying VCX-104 (L-4) in Bulk in 1984. Sales projection for 1984 is 1,300 tpy ($125,450). This new business is expected to grow to 4,000 tpy by 1988 or nearly $500,000 in 1984 gross sales.

   The vermiculite is used as a raw material in 3M's new Interam paper. Interam is sold to the automotive industry as a heat resistant gasket. There are early indications that some portion of their vermiculite requirement will be chemically treated. 3M has approved our LTEV product currently priced at $.52/lb. ($1,040/ton). We will follow up with 3M to determine their future LTEV requirements.

3. Carborundum Corp., Niagara Falls, New York reports they will order another production batch of LTEV (approximately 25,000 lbs.). We have 70,000 lbs. of LTEV in inventory at Libby and will be able to handle their order.

Carborundum competes with 3M Company's Interam paper. Carborundum expects approval at General Motors in 1984. Carborundum will also export their paper to Europe and they expect approval in Europe by 1985.

II. NEW PRODUCT DEVELOPMENT

A. Vermiculite Dispersion

1. The R&D group is working on producing larger batches (200 gallons) of dispersions for plant evaluations at Certainteed Corp. We are using some of the Polyfibron equipment in Cambridge formerly used to make battery separators.

2. Mr. Pat Meidner, from Certainteed, reports that ICI Chemical Co. visited him a week after our visit. ICI gave him a copy of their U. S. Patent application for fiberglass coated with vermiculite dispersions. Mr. Meidner states that the claims are very broad and ICI said their application has been allowed, but not issued. Mr. Meidner will send a copy of their application for our Patent office to review.

3. ICI Chemical Co. has filed four more patents in Europe covering the following subjects: vermiculite coatings with organic binders; vermiculite dispersion and polystyrene beads; vermiculite coated fiber optics and a fiberglass mat saturated with vermiculite dispersion. It is assumed ICI has filed similar application in the U. S. Patent office. Our patent study will continue.

4. Armstrong World Industries, Lancaster, Pennsylvania is very interested in working with CPD in 1984 to develop a heat resistant material using vermiculite dispersion technology. Their primary interest is the development of an asbestos paper replacement.

5. The R&D group will write a review paper on vermiculite dispersion technology. Further investigation has uncovered other Grace owned patents; one for the electrode position of vermiculite dispersions onto wire and other substrates.

B. Magnetite

There is actually more magnetite in our mine at Libby than vermiculite. It appears possible to "high grade" pockets of magnitite ore with grades as high as 60% and a granular particle size requiring minimal grinding. Samples of magnetite will be available by the end of January, 1984 to submit to Westar Mining Co. in Alberta, Canada. Westar's Magnetite requirement is approximately 12,000 tpy.

Libby was shut down 13 weeks in 1983. The development of this magnetite business will help reduce plant shut downs, and generate incremental sales and profits.

III. INDUSTRIAL VERMICULITE (ZONOLITE)

A. Nuclear Waster Disposal

We continue to receive a number of inquiries from various companies regarding the use of vermiculite as an overpacking material for nuclear waste disposal. Each potential customer is small with less than 100 bags/year requirements.

A few companies are using ZIC to keep nuclear waste from moving around in their containers. The use of vermiculite in this application should continue to grow with increased need to dispose of nuclear waste products.

B. Steel Hot Toppings

The steel industry is moving towards a new technology using a continuous casting machine which eliminates the need to transport molten steel from the furnace to the rolling mill. Vermiculite is used to keep the heat in latels and ingot molds while being transferred to the rolling mill. This new technology could make the use of vermiculite obsolete, or greatly reduced. This change will be a very slow process since investment in continuous casters is a multi million dollar project for each unit installed.

C. Ground Vermiculite

The Durez Division of Occidental Petroleum Co. has ordered 3,600 lbs. of ground vermiculite to continue testing as a filler for phenolic molding compounds. The ground vermiculite improves the heat resistance and picks up excess moisture from the compound. The 3,600 lbs. is being produced at our Newark, California plant. Our developmental price was $.90/lb. Occidental's annual requirements for ground vermiculite will depend on the results of this production trial. We will follow closely to determine future sales potential.

A. N. Crawford

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